

Application No. 09/700,536
Official Amendment dated November 5, 2003
Reply to Office Action of August 14, 2003

REMARKS/ARGUMENTS

Reconsideration and continued examination of the above-identified application are respectfully requested.

The Information Disclosure Statement filed on April 2, 2003, has not been considered. The Examiner is respectfully requested to enter and consider this Information Disclosure Statement in response to this submission.

Applicants gratefully appreciate the Examiner's indication that claims 6-10, 12, 16-18, 29, and 30 are considered to be allowable over the prior art of record. By way of the foregoing amendments, each of claims 6, 12, and 16 have been rewritten to be in independent form and to include the subject matter of independent claim 1, and any intervening claims. Accordingly, it is respectfully submitted that independent claims 6, 12, and 16 and claims 7-10, 17, and 18, depending therefrom, are now in condition for allowance.

In the Office Action, claims 1-5, 14, 20-22, 27, and 28 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,736,333 (Livak et al.). For the reasons set forth below, this rejection is respectfully traversed.

By way of the foregoing amendments, each of independent claims 1 and 27 have been amended to incorporate the subject matter of dependent claim 4. The optical instrument for monitoring PCR replication of DNA, and the system for replication and monitoring of DNA, as presently set forth in independent claims 1 and 27, respectively, each set forth a combination of features including a detector comprising an array of photoreceptors disposed to be receptive of individual emission beams focused onto the detector, and a plurality of vial lenses each disposed over a vial such that the individual

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emission beams are each associated with a vial. As a result, each of the optical instrument and the system of the invention, includes features that allow for the detection of multiple emission beams in one step at the same time.

The monitoring system disclosed in Livak et al. is very different from the invention as currently set forth in independent claims 1 and 27. Livak et al. discloses a system including an optical instrument for monitoring polymerase chain reaction replication of DNA in a reacting apparatus. Referring to Fig. 2, Livak et al. discloses the use of sample interfaces 31 that are arranged in a holder 30 which may, for example, be a heating block associated with a thermal cycler 32. The sample interfaces 31 are connected by fiber optics 34 to a fiber optic multiplexer 36, that selectively permits transmission between individual fiber optics and port 35, under user control via a programmed microprocessor. Accordingly, Livak et al. discloses selectively transmitting a single fluorescent signal, or emission beam, from a sample interface 31 to a CCD array 48.

Therefore, Livak et al. does not disclose a plurality of vial lenses, each being disposed for positioning over a vial such that an emission beam comprises individual beams each associated with a vial, and a detector comprising an array of photoreceptors receptive of the individual beams, as presently set forth in each of independent claims 1 and 27. The system of Livak et al. is incapable of detecting multiple emission beams at the same time, that have been emitted through a plurality of vial lenses.

Accordingly, it is respectfully submitted that Livak et al. does not anticipate the invention as currently set forth in independent claims 1 and 27, and claims 2, 3, 5, 14, 20-22, and 28 depending therefrom. Reconsideration and withdrawal of the rejection are respectfully requested.

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In the Office Action, claim 11 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,736,333 (Livak et al.) in view of European Patent No. 0 640 828 A1 (Higuchi et al.). As indicated in the Office Action at pages 3 and 4, paragraph 5, Higuchi et al. has been relied upon to disclose that the light source can be monochromometers and lasers, and that an emission filter can be used with the light source to obtain the desired excitation wavelength. Thus, Higuchi et al. does not otherwise overcome the deficiencies of Livak et al. as applied against independent claim 1, as set forth and discussed above. Because claim 11 depends from independent claim 1, claim 11 is also patentably distinguishable over the cited references.

Moreover, Livak et al. discloses the use of a laser as a light source (*see*, column 4, lines 33-36 of Livak et al.). As such, there would not have been any suggestion or motivation for one skilled in the art to pass excitation beams emitted from the laser light source of Livak et al. through an optical filter to fine tune the excitation wavelength, as asserted in the Office Action. Thus, one skilled in the art would not have combined the disclosure of Higuchi et al. with Livak et al., to render claim 11 unpatentable. Reconsideration and withdrawal of the rejection are respectfully requested.

In the Office Action, claim 13 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Higuchi et al. in view of Patent Application Publication No. US2002/0146688 A1 (Kinjo). For the reasons set forth below, this rejection is respectfully traversed.

It is respectfully submitted that Kinjo is not prior art with respect to the present application. Kinjo has an earliest priority date of June 3, 1999, while the present application claims the benefit under 35 U.S.C. § 371 from International Application No. PCT/US99/11088, filed May 17, 1999.

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Accordingly, Kinjo does not qualify as prior art under 35 U.S.C. §§102 or 103 with respect to the present application. Reconsideration and withdrawal of the rejection are respectfully requested.

In the Office Action, claim 15 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Livak et al. For the reasons set forth below, this rejection is respectfully traversed.

According to the Office Action at pages 4 and 5, paragraph 7, the Examiner asserts that Livak et al. discloses the use of a second fluorophore as an internal reference, and that the mere duplication of the internal reference is considered to be patentably insignificant in the absence of unexpected results. However, it is respectfully submitted that even if these assertions were true, the modifications would not overcome the deficiencies of Livak et al. in relation to independent claim 1, as set forth above. Because claim 15 depends from independent claim 1, claim 15 is patentably distinguishable over Livak et al. for the reasons set forth above with respect to claim 1. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

In the Office Action, claims 19 and 23-26 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Livak et al. in view of Higuchi et al. For the reasons set forth below, this rejection is respectfully traversed.

As indicated in the Office Action at page 5, paragraph 8, Higuchi et al. has been relied upon to disclose the use of a control tube to provide a constant fluorescence source. Thus, Higuchi et al. does not otherwise overcome the deficiencies of Livak et al. as applied against independent claim 1, as set forth above and discussed above. Because claims 19 and 23-26 depend from independent claim 1, claims 19 and 23-26 are also patentably distinguishable over the cited references for the reasons set forth above. Reconsideration and withdrawal of the rejection are respectfully requested.

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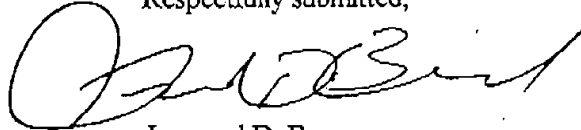
CONCLUSION

In view of the foregoing remarks, Applicants respectfully submit that claims 1-3 and 5-30 are in condition for allowance. Applicants respectfully request fair and considerable reconsideration of the present application and a timely allowance of the pending claims.

Should the Examiner deem that any further action by Applicants or Applicants' undersigned representative is desirable and/or necessary, the Examiner is invited to telephone the undersigned at the number set forth below.

If there are any other fees due in connection with the filing of this response, please charge the fees to deposit Account No. 50-0925. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such extension is requested and should also be charged to said Deposit Account.

Respectfully submitted,



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